

ABSTRACT

A reactor of the staged adiabatic reactor type, comprises at least one heat exchanger panel, preferably a printed circuit heat exchange (PCHE) panel, interposes between adiabatic beds of catalyst, wherein the facial area of the panels and the  
5 superficial facial area of the corresponding catalyst are substantially similar, and the panels include means defining discrete passages for handling of reactants and heat transfer media, wherein the means defining passages for heat transfer media provide for at least two differing flow path directions for the heat transfer media through the heat exchanger panel whereby the occurrence of temperature bias or differentials is reduced.